Review of Recent Literature

Angerillia, N.P.D. 1980. Influences of aquatic plants on colonization of artificial ponds by mosquitoes and their insect predators. Can. Ent. 112:793-796.

The plants involved were *Utricularia minor, Elodea canadensis* and *Lemna minor.* There were fewer mosquito eggs and larvae in ponds filled with the above plants than in plantless controls, and more predators in the *Utricularia* and *Elodea* ponds than in the *Lemna* and plantless ponds.

Bopp, M. and I. Weber. 1981. Hormonal regulation of the leaf blade movement of *Drosera capensis.* Physiol. Plant. 53:491-496.

A summary of this fascinating work appeared in the June, 1981 issue of CPN (10:37). DES

Bosserman, R.W., Elemental composition of aquatic plants from Okefenokee Swamp (Georgia and Florida, USA). J. Freshwater Ecology 1(3): 307-320 1981.

Three species of *Utricularia (purpurea, juncea* and *inflata)* were sampled from 7 marshes and partitioned into roots, rhizomes, stems, petioles, leaves and flowers. *Utricularia* had the highest concentrations in iron and aluminum and generally the elements, potassium, calcium, sodium and manganese were higher in concentration in upper plant parts than roots and rhizomes.

Carlquist, S. Wood anatomy of *Cephalotaceae.* Int. Assoc. Wood Anat. Bull. 2(4):175-178 1981.

The study of the wood anatomy of *Cephalotus* apparently shows that it is related to the *Saxifragaceae* and allied families.

Forsyth, A. 1982. Bog behavior: Pitcher plants and sundews. Horticulture 60:24-29.

An excellent article by a Canadian naturalist covering *Sarracenia purpurea* and *Drosera rotundifolia* as they grow in northern bogs and written from an ecological behaviorist viewpoint, as the title suggests. The author stresses natural habitat, but gives advice on outdoor growing, to be recommended for these species over indoor growing. Accompanied by six superb color photos (one full page) and a range map. DES

Heusser, C., Palynology of cushion bogs of the Cordillera-Pelada, Province of Valdivia, Chile. Quat. Res. (NY) 17(1):71-92 1982.

Fossil pollen identified as *Drosera uniflora* was found in deposits that dated 10,425 carbon-14 years ago. This species continues to grow today in the Cordillera Pelada. The author discusses the climate changes that occurred during this long time period.

Hill, BS and GP Findlay. 1981. The power of movement in plants: the role of osmotic machines. Quarterly Rev. Biophysics 14:173-222.

Among several plant genera discussed, the CP genera of *Drosera, Dionaea, Aldrovanda* and *Utricularia* are of course reviewed. These are brief summaries in which the main thrust is the authors' contention that movement is chiefly due to osmotic fluid shifts stimulated through various mechanisms. The paper should be read for more details including mathematical formulae and bibliography. DES

Hindley, K. 1980. The association of ladyslipper orchids and insectivorous plants: Part III. The association of *Cypripedium reginae* and *Cypripedium pubescens* with *Drosera rotundifolia* in bogs in Vermont. Orchid digest 44:233-235.

In a 20-acre sphagnum bog in Vermont, the author found comparatively few, widely scattered clumps of the above orchids. The sundews were always found in association with the orchids, in spite

of apparently similar habitat abundant throughout the large area. DES

Hooper, R. R. 1982. Collecting beetles in an acid pitcher plant bog. Blue Jay 40:80-81.

The author spent several days in a Saskatchewan sphagnum bog collecting beetles. One interesting feature of the article is that the author found many records or unusual species by noting elytra and other chitinous body parts in *Sarracenia purpurea* pitchers, which thus served as natural concentration traps for the collecting entomologist. DES

Iijima, T. and T. Sibaoka. 1981. Action potential in the trap-lobes of *Aldrovanda vesiculosa*. Plant and Cell Physiol. 22:1595-1601.

Action potential studies indicate a mechanism very similar to *Dionaea*. This is interesting in view of differences in natural habitat adaptations. Both mechanisms may have advanced from the slow one of *Drosera*. DES

Iijima, T. and T. Sibaoka. 1982. Propagation of action potential over the trap-lobes of *Aldrovanda vesiculosa*. Plant & Cell Physiol. 23:679-688.

An action potential was generated in a cell in the base of a sensory hair. Recordings indicated that the potential spread electronically over the lobe. EM disclosed numerous communicating plasmodesmata between cells which would allow an electrical transmission between cells.

Moffat, A.S. 1982. The acid-rain problem. Horticulture 60:12-19.

There has been much discussion lately in popular and scientific annals about the acid rain problem, often with few facts to back up emotional assertions. The author does a fine job of summarizing what we know to date, including what little experimental work has been done. In fact, while acid rain may decrease various kinds of productivity of some plants, it increases many others (including agricultural species). The ratio is about 50/50 overall. The greatest threat of acid rain then may be to diversity rather than plant life itself (effects on animal life are far more profound in many cases, especially amphibians and fishes). CP are not specifically mentioned, but it is noted that eutrophication in many Adirondacks boggy lakes is arrested. Specific research on CP would be of interest. DES

Nordbring-Hertz, B. and G. Odham. 1980. Determination of volatile nematode exudates and their effects on a nematode-trapping fungus. Microb. Ecol. 6:241-251.

Volatile organics were determined by gas chromatograph, and CO_2, NH_3 and acetic and proprionic acids by other methods, as expressed from nematodes. The effects of some of these compounds in trap induction in *Arthrobotrys oligospora*. Generally (somewhat concentration dependent—see paper), CO_2 inhibited, NH_3 stimulated and the two acids had no effect on trap induction.

Schnell, D.E. 1982. Effects of simultaneous draining and brush cutting on a *Sarracenia* L. population in a southeastern North Carolina pocosin. Castanea 47:248-260.

A large, privately-owned pocosin was drained and cleared for silviculture. This afforded an opportunity to observe the phenology and some possible relationships of pitcher plant survival under varying conditions after the treatment. Immediately after clearing, increased light and space resulted in a massive display of three *Sarracenia* spp. the following spring, and reasoning is offered against nutrient ash effect. As the results of ditching became effective a year or more later, pitcher plant growth ceased, indicating soil moisture as a limiting factor since there was insufficient pocosin shrub

regrowth yet to bring light and space limitations into play. The observations were in effect a model of the effects of these three factors on pitcher plant populations. (Reprints: D.E. Schnell, Rt. 1, Box 145C, Pulaski, VA 24301).

Simons, P., The touchy life of nervous plants. New Scientist, March, 1982.

This popular article discusses the need for plant scientists to resume research into the "real" electrical signals that a large variety of plants evoke including CP for regulating many different processes. The author describes why electrophysiology was neglected for decades, which left a gap of knowledge that was filled by sensationalists who grossly exaggerated the plants' response to stimuli. This is an article that will stimulate new ideas for research and should be read by everyone interested in this area.

Watson, A. P., et. al. 1982. Arthropod associates and macronutrient status of the red-ink sundew (*Drosera erythrorhiza* Lindl.). Australian J. Ecol.

Various arthropods associated with this sundew in native habitat were studied. Several were prey for the sundew, some were pre-robbers. Physical model studies in the field indicated that insect components were sufficient to supply 100% of nitrogen and phosphorous, but a negligible portion of potassium which came from soil sources.

Wolfe, L.M. 1981. Feeding behavior of a plant: Differential prey capture in old and new leaves of the pitcher plant (*Sarracenia purpurea*). Am. Midl. Nat. 106:352-359.

An environmental chamber of *S. purpurea* plants was set up in the lab and the plants captured measured numbers of fruit flies introduced into the chambers. New pitchers captured more insects than old, as did pitchers with wider openings. Also, older pitchers on plants with a new pitcher captured more flies than older pitchers on plants without new pitchers. These results were within limits of numbers of introduced flies which were varied.

DES

WANT ADS

Jim Comia (18701 San Rufino Dr., Irvine, CA 92715). WB: *Sarracenia oreophylla, S. rubra wherryi, S. rubra gulfensis, S. rubra alabamensis, S. rubra jonesii, S. rubra rubra, Pinguicula vulgaris, S. purpurea venosa* "Louis Burk" flower, *S. flava* "red throat," *Pinguicula macroceras.*

Harris Emmons III (824 McGilvra Blvd. E., Seattle, WA 98112). WB: (plants) *Drosera adelae, D. filiformis, D. schizandra, D. regia, D. binata* (T form), *Pinguicula caudata, Cephalotus.*

Steve Friedrich (172 Hutchens Close, Baringa Gardens, Melba A.C.T. 2615, Australia). Wanted: Plants, seeds or cuttings of *Nepenthes* and *Heliamphora.* I have for trade *Drosera prolifera, D. schizandra, D. indica, Byblis gigantea, Chrysamphora californica, Nepenthes mixta, N. balfouriana, N. mirabilia* and many others.

Donald Kalb, Jr., (Box 25, Peosta, Iowa 52068). WB: *Byblis gigantea* seeds or plants; *Drosera regia* seeds or plants.

Lee's Botanical Gardens (P.O. Box 7026, Ocala FL 32672). TS: giant *psittacina,* red *flava, flava mixima, psittacina* × *alata, psittacina* × *purpurea, flava* × *rubra, rubra* × *purpurea, psittacina* × *leucophylla, leucophylla alba,* many more. WT: *Nepenthes* plants or cuttings.

CHELSEA *(from page 100.)*

If I may be allowed to quote from our rules, the Constitution of the Society, our primary aim is 'to further the knowledge of the public in the field of carnivorous plants.' I think that this stand furthered everybody's knowledge.

Naturally, no education process ever stops, and we would be pleased to hear other people's comments on plant carnivory so that we can work towards a definition of plant carnivory that is acceptable to everybody. The Carnivorous Plant Society can be contacted at 'Carn View,' Lanner Hill, Redruth, Cornwall TR16 6DA, ENGLAND. (John Sirkett's address.)